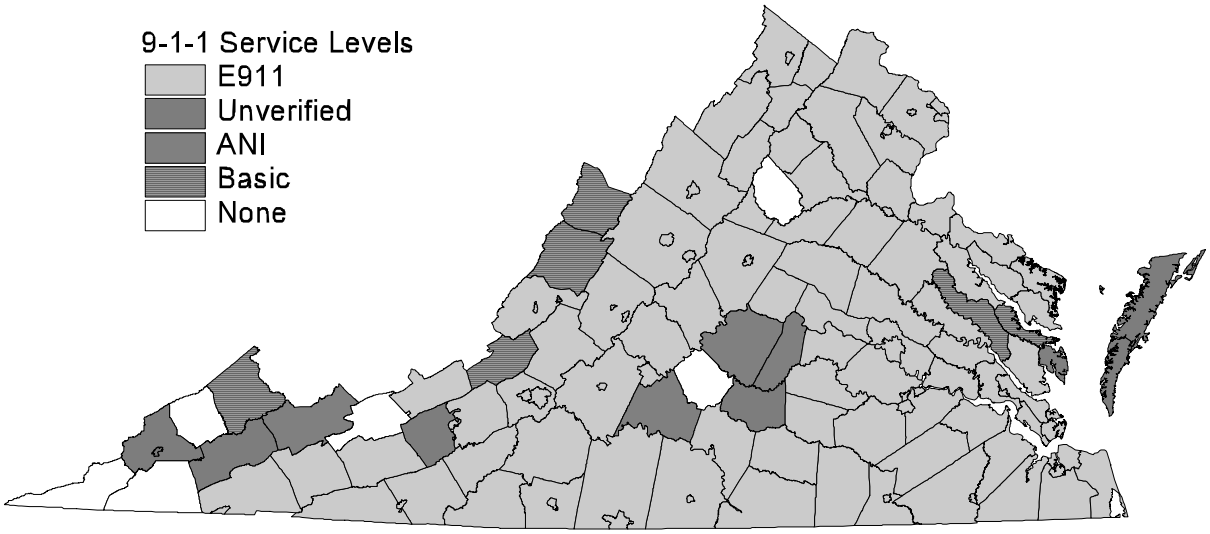
Wireless E-911 Services Board

FY2002

Annual Report



Prepared by the
Department of Technology Planning
Division of Public Safety Communications

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Executive Summary

During the past year, the Wireless E-911 Services Board (the Board) has met monthly as required by the *Code of Virginia*. During that time, the Board has:

- provided $9.8 million for the Virginia Base Mapping Initiative;
- conducted the audit of FY2001 funding provided as required by *Code* (50 localities, 7 wireless service providers);
- approved 71 public safety answering points (PSAPs) for FY2003 funding (approximately $11.8 million);
- approved nine wireless service providers for FY2003 Phase I funding and three for Phase II funding;
- is currently processing the audit of FY2002 funding received by the localities and wireless service providers;
- revised the guidelines for both the wireless provider funding for Phase II services; and
- conducted Phase I status reviews with each major wireless service provider in the Commonwealth.

Section 56-484.14 of the *Code of Virginia* requires the Board to:

> 7. Report annually to the Governor, the Senate Committee on Finance and the House Committee on Appropriations, and the Virginia State Crime Commission on (i) the state of enhanced wireless emergency telecommunications services in the Commonwealth, (ii) the impact of, or need for, legislation affecting enhanced wireless emergency telecommunications services in the Commonwealth, (iii) the need for changes in the Wireless E-911 funding mechanism as appropriate, and (iv) the sufficiency of other moneys appropriated for the provision of enhanced wireline emergency telecommunications services only in those local jurisdictions not wireline capable as of July 1, 2000.

This report is to satisfy this requirement.

The state of enhanced wireless emergency telecommunications services in the Commonwealth

The implementation of wireless enhanced 9-1-1 (E-911) Phase I, the caller telephone number and the address of the cell site, has progressed. While some wireless service providers have been aggressive with implementing the service, technical problems as well as corporate issues have continued to slow implementations by other providers. All providers are now providing the Board with a monthly report indicating progress and any issues delaying implementation. These reports are public and are posted on the Board's website (www.va911.org) to allow public review.

One of the most impressive accomplishments during FY2002 was that Phase II service was deployed in most of Eastern Virginia and Richmond. Led by York County, Virginia became the fourth and by far the largest Phase II deployment in the Nation. The deployed solution works for both the legacy subscriber base and the new global positioning system (GPS) equipped handsets. With existing handsets, the technology provides the caller's actual location within a 400 to 1,000-meter accuracy. While this does not meet the Federal Communications Commission (FCC) requirement, it is much better than the cell site information provided in Phase I. With a GPS-equipped handset, accuracy improves to 50 to 100-meters. Some test calls have actually shown the

callers location within a matter of a few feet. Verizon Wireless (the provider) and all of the localities involved should be commended for their efforts. Their commitment to public safety reaffirms Virginia's place as a national leader in the delivery of 9-1-1 services.

The impact of, or need for, legislation affecting enhanced wireless emergency telecommunications services in the Commonwealth

While the current sections of the *Code of Virginia* that address wireless E-911 are generally sound, the Board is proposing two changes for the 2003 General Assembly Session. The first would explicitly include prepaid wireless service in the collection of the wireless surcharge and provide wireless service providers two methods to collect it. Currently, an inequity exists between the providers that collect the surcharge from prepaid subscribers and those that do not collect it. The second recommended legislative change would allow Board members to send an alternate to act in their place if they are unable to attend a Board meeting. The Board has had several meetings when a quorum was not met or was in jeopardy.

The need for changes in the Wireless E-911 funding mechanism as appropriate

The Wireless E-911 Fund is fiscally sound. It had a fund balance of just over $45 million at the end of FY2002. Projections indicate that the $0.75 surcharge is appropriate to fund statewide deployment of wireless E-911. Since statewide deployment has not been achieved, the fund balance continues to grow. However, this is actually fortunate since the cost to implement Phase II is primarily a non-recurring cost and will be high. Additionally, several other projects are being funded from the Wireless E-911 Fund. The Virginia Base Mapping Initiative ($9.8 million), the wireline E-911 grant program ($9.8 million), wireless project management ($7.5-$8 million) and the State Police funding ($7.4 million) are all being backed by the Wireless E-911 Fund. Projections indicated that implementation of Phase II over the next two years and these other projects will deplete the remaining fund balance by the end of the biennium.

The sufficiency of other moneys appropriated for the provision of enhanced wireline emergency telecommunications services

The current biennial budget includes a $9.8 million appropriation from the Wireless E-911 Fund to assist localities with the deployment of wireline E-911. To ensure that localities could receive the funding as quickly as possible, the Board adopted funding guidelines in March 2002 and began receiving funding requests in May. The Board approved $7.2 million to 22 localities before the fiscal year began so that on July 1 the first payments could be made. There were a total of 37 localities eligible for funding since they did not have E-911 by July 1, 2000. Projections indicate that the original appropriation will be sufficient for all of the localities to receive funding.

The following sections of the report provide a more detailed analysis of the current state of E-911 in the Commonwealth exploring both wireless and wireline implementations.

Legislative History

In 1998, the General Assembly passed legislation that established a $0.75 surcharge on wireless telephone service and created the Board to administer the funds. The original Board consisted of seven members, three from local government, three from the telecommunications industry and the Comptroller of Virginia, who chaired the Board. The Board was a separate political subdivision and did not have any staff support within the state government. In spite of this, the Board began distributing funding to localities and wireless service providers in FY2000, providing over $4 million for the provision of wireless E-911.

During the 2000 Session, the General Assembly enacted omnibus legislation (Senate Bill 148) to enhance the delivery of public safety services to citizens of the Commonwealth through improvements to emergency telecommunications systems. First, the legislation established 9-1-1 as the only emergency number for use in the Commonwealth and dates by which localities must implement wireline E-911 and wireless 9-1-1. It also expanded the Wireless E-911 Services Board both in size and in scope. The Board increased to fourteen members adding representatives for the police chiefs, fire chiefs, EMS chiefs, sheriffs, State Police, and emergency management. The scope of the Board was expanded to include the disbursement of funding for the implementation of wireline enhanced 9-1-1 and policy-making authority for issues relating to wireless 9-1-1. To provide staff support the Division of Public Safety Communications (DPSC) was created within the Department of Technology Planning.

In 2001, two pieces of legislation passed impacting 9-1-1. The first revised several definitions in the legislation including one change to specifically include resellers of wireless service in the requirement for surcharge collection. The other bill (HB1611) excluded localities with no local wireline E-911 surcharge and less than 50% wireless telephone service coverage from having to implement wireline and wireless E-911. While this bill originally was intended to exempt Bath, Highland and Craig Counties, Lee County believes they qualify for the exemption and thus need not implement E-911. This is significant since Lee is the only one of the four localities that does not even have Basic 9-1-1.

During the 2002 General Assembly session, only one legislative change that impacted E-911 was enacted. The change, which modified several definitions relating to the wireless surcharge, was necessary to keep the wireless E-911 legislation (and other legislation with mobile telecommunications taxation) in compliance with the federal Mobile Telecommunications Sourcing Act of 2000.

Need for Legislative Change

One issue that the Board is directed to address in this report is the need for legislative changes. In last year's annual report, the Board identified two issues that required legislative changes; the application of the surcharge to prepaid wireless telephone service and alternative representation for Board members unable to attend a meeting. These changes were not forwarded to the General Assembly last year due to the outgoing administration's reluctance to introduce a large number of legislative changes. The Board renews their request for these changes for the 2003 General Assembly Session.

Currently, ten wireless service providers in Virginia offer prepaid wireless service in the Commonwealth. Of these, seven collect the wireless surcharge and three do not. To create equity among the providers, the *Code* must be modified to either explicitly include or exclude prepaid wireless service from the surcharge. The impact of excluding prepaid from the surcharge is a reduction of approximately $2,076,000 a year in Wireless E-911 Fund revenue from those providers currently remitting it. The impact of including prepaid wireless in the surcharge is an increase of approximately $946,000 a year to the Wireless E-911 Fund.[1]

Prepaid wireless service is expected to grow in the coming years making the economic impact greater. According to the April 2002 Yankee Group report titled "Can U.S. Carriers Become Profitable in Wireless Prepaid?" nationally, 12% of all wireless subscribers are currently prepaid subscribers. The report also projects that this figure will grow to 30% by the end of 2006, making the total value of prepaid wireless in Virginia in 2006 approximately $8.4 million. Since a portion of this growth will be from post-paid subscribers switching to prepaid service, the Wireless E-911 Fund will see an overall reduction to revenue.

After significant discussion, the Board adopted the position that prepaid wireless service should be included in the collection of the surcharge (Figure 1). This was primarily because excluding prepaid wireless service would create an inequity between prepaid and post-paid subscribers, which some Board members felt was as undesirable as the original inequity among wireless providers.

The next issue the Board had to address was how a prepaid surcharge should be assessed. Based on input from the wireless service providers, two methods of collection were identified that are currently in use. First, the surcharge can be added at the point of sale. This would involve an additional $0.75 being included in the purchase price of the service. According to some of the wireless providers interviewed, this is the most favorable method of assessment. The disadvantages of this method are that a wireless subscriber may only be billed for one month of surcharge but use the service for more than one month or may get billed more than $0.75 per month if they purchase more than one prepaid wireless service during a single month.

§56-484.12. Definitions.

"Wireless E-911 surcharge" means a monthly fee of seventy-five cents billed ~~monthly~~ by each CMRS provider and CMRS reseller on each CMRS number of a customer with a place of primary use in Virginia. *The surcharge shall be collected from post paid wireless service subscribers through monthly billing. For any subscriber not billed on a monthly basis, the surcharge shall be collected either at the point of sale or calculated monthly based on the number of wireless subscribers on the last day of the month. The surcharge amount or an equivalent number minutes may be reduced from the prepaid subscribers account balance since a direct billing may not be possible.*

Figure 1 - Legislative Change for Prepaid Service

The second method of collection is for the wireless service provider to count the number of prepaid customers on the first or last day of the month and remit funding for $0.75 times this count. Since an address is not always available for prepaid customers, the count would need to be based on the telephone number of the prepaid service. To offset the cost of the surcharge, the wireless service provider can subtract the $0.75 from the subscriber's account balance as a cash value or as an equivalent number of minutes. Most of the wireless service providers currently collecting the

[1] Projections are based on the percentage of prepaid subscribers for each wireless services provider as reported by the Yankee Group in April 2002.

surcharge use this method. The Board recommends that either method be considered acceptable in the proposed legislation.

§56-484.13. Wireless E-911 Services Board; membership; terms; compensation.

D. A majority of the Board shall constitute a quorum. *If a member of the Board is unable to attend a meeting, an alternate, designated in writing by the Board member, may act in place of the Board member for that meeting.* The Board ~~shall hold its first meeting on or before October 1, 2000, and~~ shall meet at least ~~monthly through June 2002, and at least~~ quarterly ~~thereafter~~, or at the call of its chairman.

Figure 2 - Legislative Change for Attendance

The second legislative initiative (Figure 2) is to allow Board members that are unable to attend a meeting to designate an alternate for that meeting with full authority to vote and be counted toward the quorum of the Board. Not all fourteen members of the Board are able to attend every meeting. With the quantity of meetings the Board is required to and needs to hold, it is sometimes difficult to reach a quorum (eight members) of Board members. Since its creation, the Board has been unable to convene a quorum on three occasions and on one occasion a member had to leave pressing business in Charlottesville to come to Richmond in order to take several important votes.

Telecommunications Industry Trends

The use of mobile telecommunications continues to grow. In last year's annual report, it was noted that there were estimated to be over 120 million wireless telephones in the United States. By the end of FY2002, that number had risen to approximately 135 million[2]. That increase equates to over 41,000 new wireless telephones being activated each day. This trend increases the urgency of implementing wireless enhanced 9-1-1 services.

Since 1985 (Figure 3 & 4), the average annual growth rate of wireless services had been 32.3% while wireline growth has only averaged 2.8%. However, the growth rate has been steadily declining in recent years with wireless experiencing only a 14.7% growth last year and wireline actually having a 4.9% reduction in access lines. As a result, wireless subscribers are projected to surpass wireline access lines during 2005. The declining growth is likely attributable to the penetration of wireless service with nearly 70% of

Calendar Year	Wireline Access Lines	Wireless Subscribers
1985	117,434,802	340,213
1986	120,781,565	681,825
1987	124,678,710	1,230,855
1988	126,953,616	2,069,441
1989	130,915,695	3,508,944
1990	134,743,029	5,283,055
1991	139,672,703	7,557,148
1992	142,428,028	11,032,753
1993	147,095,681	16,009,461
1994	151,607,529	24,134,421
1995	158,219,924	33,785,661
1996	165,420,650	44,042,992
1997	173,890,908	55,312,293
1998	180,471,261	69,209,321
1999	186,658,645	86,047,003
2000	188,626,589	109,478,031
2001	179,746,541	128,374,512
Projections		
2002	184,216,497	145,509,055
2003	188,320,776	163,119,701
2004	192,079,775	181,020,949
2005	195,514,732	199,034,415

Source: Wireline: FCC, Wireless: CTIA, Projections are based on a 15-year trend analysis.

Figure 3 - Subscriber Counts - 1985-2001

[2] Cellular Telecommunications and Internet Association (CTIA), Semi-Annual Wireless Industry Survey Results.

Americans between the ages of 12 and 65 having wireless telephones[3].

Virginia subscriber data can be calculated since July 1998 using the Wireless E-911 Surcharge revenue data. Comparing the Virginia data to the national data (Figure 5) indicates that Virginia has consistently represented 2.0% to 2.3% of the national subscriber based. Assuming this trend will continue and based on the national trends in wireless, Virginia will continue to see growth in wireless subscribers. Since the FCC reports that in 2000 Virginia had just over 4.2 million wireline access lines and some growth is likely, wireless will not surpass wireline in Virginia until after 2005.

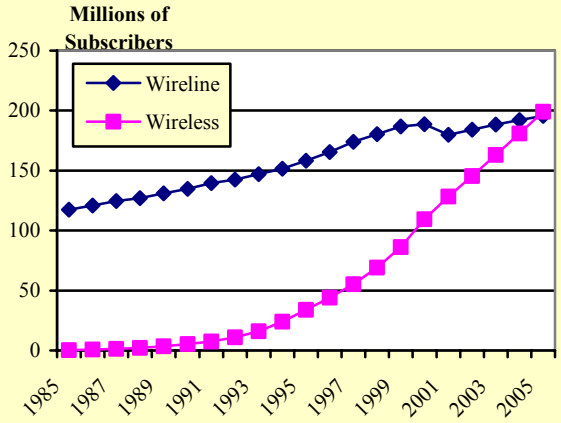

Figure 4 - Chart of Wireline and Wireless Subscriber Growth

Calendar Year	Virginia Subscribers	Wireless Subscribers
1998	1,394,561	69,209,321
1999	1,878,083	86,047,003
2000	2,236,212	109,478,031
2001	3,005,361	128,374,512
Projections		
2002	3,406,496	145,509,055
2003	3,818,777	163,119,701
2004	4,237,861	181,020,949
2005	4,659,572	199,034,415
Virginia projections are based on applying the national trends to Virginia subscriber counts calculated from revenue data.		

Figure 5 - Virginia Wireless Subscriber Count

Even though commercially produced projections mirror those created for this report, the wireless industry continues to be volatile. Several studies noted that there was a considerable surge in the sale of wireless telephones in the weeks following September 11 that likely contributed to the strong finish for the year. Without this late surge, last year's wireless growth would have been less. This volatility makes projections of subscribers for even the coming year extremely difficult. A January 2002 study[4], which compared 2001 projections made in 2000 by seven of the major research firms with the actual results, showed that the projections were off by as much as 22 million subscribers with an average error of about 8 million subscribers.

Another trend contributing to this volatility is the mergers and acquisitions of telecommunications companies. Several sources report that several major wireless providers are in merger discussions. The reason for the discussions is that the wireless market may not be growing fast enough to support six big carriers. Phillip Redman of Gartner, a major research firm, said, "It's the law of the big three. You see it in the auto industry. You see it in long distance. And you are going to see it in wireless."

These trends are important to the delivery of E-911 in Virginia for the following reasons:

1. The difficulty in making subscriber projections makes revenue projections equally difficult. Major research firms missed the correct subscriber predictions by an average of 6.2% with

[3] Joelle Tessler, The Mercury News, August 4, 2002
[4] eMarketers, Projection versus Reality, A Review of 2001 E-Business Numbers as Predicted by Leading Researchers, January 2002

one off by 17.1%. Applying this to Virginia's revenue means projections could deviate from the actual by $1.7 million to $4.7 million per year.

2. Local revenue from the E-911 surcharge imposed on wireline telephone service will likely begin to decline or at least not increase as quickly. While funding is provided by the Board for direct costs incurred with the implementation of wireless E-911, the wireline legislation (§58.1-3813.1) is more broad allowing localities to fund more of the general operating costs of running the 9-1-1 center. A reduction in growth of this surcharge or an outright reduction of the revenue from the local surcharge may limit a locality's ability to respond to increasing demand. As subscribers shift from wireline to wireless service, a shift may also be necessary in the way E-911 is funded.

3. While mergers and acquisitions would not likely have an impact on revenue, it could dramatically impact the cost to implement enhanced 9-1-1 services on the providers' networks. Each provider is currently building and will be maintaining an independent E-911 network. The consolidation of wireless networks will result in cost savings to the Commonwealth. The big question is if and when these consolidations will take place.

Wireless Enhanced 9-1-1

Introduction

Public safety answering points (PSAP) around the nation have reported that the percentage of calls coming from wireless telephones is increasing (Figure 6), though, like the number of wireless subscribers, it is not increasing as fast as it did in the early 1990's. However, even with a reduction in the growth, the number of wireless 9-1-1 calls has already reached or surpassed the number of wireline E-911 calls in many of the more populous Virginia localities. Of concern to the PSAPs in these localities is that wireless calls to 9-1-1 do not provide the location of the caller the way wireline enhanced 9-1-1 does. This lack of an automatic location results in more time for the call taker to process the call or an inability to locate the caller at all. Several recent incidents have occurred around the country that demonstrate the problems PSAPs can have locating a wireless 9-1-1 caller.

Year	Wireless 911 calls
1985	193,333
1986	649,659
1987	1,202,336
1988	2,382,855
1989	4,311,497
1990	5,914,653
1991	8,007,586
1992	12,641,470
1993	15,491,344
1994	17,910,620
1995	20,059,894
1996	21,659,967
1997	30,517,327
1998	35,805,405
1999	43,298,856
2000	51,104,214
2001	56,879,775

Source: CTIA

Figure 6 - Wireless 9-1-1 Calls

To respond to this issue, in 1996, the FCC released an order requiring wireless service providers to implement enhanced features and location technology. The implementation was to occur in two phases. Phase I provides the PSAP with the caller's telephone number and the address of the cell site receiving the call along with the orientation of the antenna, if the antenna is directional. Phase II provides the PSAP with the actual location of the caller within a defined margin of error depending on the location technology used by the provider (Figure 7). According to the order, the wireless service provider must implement Phase I within six months of a request from the PSAP. The timeline for Phase II is contingent on the location technology selected by the wireless service provider, network-based (triangulation) or handset-based (global positioning system – GPS).

The Wireless E-911 Fund

The Wireless E-911 Fund is generated by a $0.75 surcharge placed on every wireless telephone billed by a wireless service provider in Virginia. The fund currently generates approximately $2.3 million each month. The Fund had a balance of approximately $45 million at the end of FY2002, which is $8 million greater than the FY2001 ending balance. This raises an important question: Should the surcharge rate be lowered? Projections for statewide deployment indicate that the surcharge rate is appropriate for statewide deployment. Though great strides were made during FY2002, statewide deployment still has not been achieved. Since not all PSAPs have requested service or funding and wireless providers still have not deployed in all localities that have requested service, the fund balance continues to increase.

Phase II Error/Timing

Network based solution:

Accuracy

- 100 meters 67% of the time
- 300 meters 95% of the time

Timing

- Six months after request must implement 50% of network
- 100% of network within 18 months of request

Handset based solution:

Accuracy

- 50 meters 67% of the time
- 150 meters 95% of the time

Timing

- Must offer handsets with GPS capability by October 2001
- 25% of new handsets must be GPS capable by December 31, 2001
- 50% of new handsets must be GPS capable by June 30, 2002
- 100% of new handsets must be GPS capable by December 31, 2002
- 95% of all customers must be converted to GPS capable handsets by December 31, 2005

Figure 7 - FCC Phase II Requirements

The estimated annual recurring PSAP cost provided by the Board is approximately $12.2 million for statewide deployment. This is based on the total operating costs of over $88.5 million reported to the Board in the FY2003 funding requests (Figure 8). Knowing that this cost covers 88.8% of Virginia's population allows these costs to be extrapolated to produce a statewide estimate. The only operating costs that are 100% funded are the recurring trunking costs. All other operating costs including personnel costs are funded by the Board proportionally to the percentage of wireless 9-1-1 calls to total calls (9-1-1 and administrative) answered by the PSAP. In December of 2001, the Board established a minimum percentage for these costs of 10.42%, which is the statewide average percentage. Additionally, the Board established a minimum amount of net personnel funding, $30,000, to allow every PSAP to hire at least one additional position to handle wireless 9-1-1. Personnel cost comprises the lion share of the recurring cost to the Board at approximately $10.2 million. Funding provided to the localities by the Compensation Board is not included in the overall costs considered by the Board since it is provided by another State agency.

Using the average cost per subscriber per month from the wireless service provider's submissions, the amount needed to fund the wireless service provider costs is approximately $12.3 million. In last years report, it was noted that it appeared the provider costs for Phase I were going down as evidenced by AT&T announcing they would not seek cost recovery for Phase I. This is no longer the trend. While there have been some changes to the way the cost is

Type of Funding	FY2003 Reported	Statewide Estimate	Board Funding
Personnel & Shared costs	$68,169,066	$82,523108	$11,142,382
Wireless Trunking	$389,440	$471,443	$471,443
Equipment Replacement*	N/R	$5,570,000	$580,394
Total	$68,558,506	$88,564,551	$12,194,219
* - Equipment costs are calculated based on an estimated 557 9-1-1 answering position replaced on a 5-year cycle at $50,000 each.			

Figure 8 - PSAP Cost Estimates

being calculated (based on the number of towers rather than subscribers), costs are not reducing. In fact, AT&T has now announced that they will seek cost recovery for Phase I service and has made a late submission for FY2002 funding.

Combining the PSAP and provider recurring costs and adding the recurring cost of the Division of Public Safety Communications (DPSC) and Virginia Geographical Information Network (VGIN) Division results in a total of $25 million of recurring statewide cost. As previously discussed, revenue is difficult to project accurately. Though the subscriber projections above would result in higher projections, a more conservative estimate of revenue is appropriate especially in light of the current economic forecasts and volatility in the telecommunications industry. The projected revenue for FY2003 and FY2004 is $27.4 million for each year. When compared to the recurring expenditures from the Fund the $0.75 surcharge is adequate to fund the recurring costs for wireless E-911. Each penny of surcharge generates approximately $365,000 of revenue. Lowering the surcharge rate at this point would cause a deficit when statewide deployment is realized especially since statewide deployment should be reached during the current biennium.

With the recurring health of the fund addressed, the questions of what to do with the existing fund balance is an appropriate next question. The General Assembly has already provided some of the answers to this question in the biennial budgets (Figure 9). Funding provided to the State Police is listed as a non-recurring cost because including the projected recurring revenue cannot support the additional cost in the long term. Additionally, wireless 9-1-1 calls are currently being transitioned from the State Police dispatch centers to the local PSAP. This process should be completed by the end of FY2004 so funding wireless call taking in the State Police should no longer be necessary.

Description	FY2003	FY2004
Base Mapping Initiative	$8 million	$0
Phase II Costs	$15 million	$10 million
VGIN Funding	$125,000	$125,000
State Police Funding	$3.7 million	$3.7 million
Wireline E-911 Grants	$9.8 million	$0
Total	$36.6 million	$13.8 million

Figure 9 - Non-recurring Funding

There are also other related projects that will require funding that were not identified in the budget. During FY2002, the Board added project management assistance as an allowable expense under the wireless E-911 funding guidelines. This was done to address the lack of time and experience within the PSAPs to deploy wireless enhanced services. Since the assistance is only necessary during deployment, it is considered a non-recurring expense. While this aspect of funding is discussed in greater detail below, it is important to note that current estimates project the cost of this initiative at $7.5 to $8 million. While this project would appear to drive costs significantly over the available revenue, delays in deploying statewide services and the conservative approach that the Board has historically displayed will allow the Board to operate within its means. If for any reason sufficient funding were not available, each recipient of funding would receive a prorated share as defined in *Code*.

Wireless Funding

The Wireless E-911 Services Board began providing this funding to PSAPs and wireless service providers in the FY2000 budget year. The amount of funding has increased each year as

FY	PSAPs	Localities Served	PSAP Funding	Wireless Provider Funding
2000	23	28	$4,316,115	$396,144
2001	40	50	$7,047,639	$1,862,736
2002	83	92	$14,303,163	$2,375,186
2003	71	82	$11,795,463	$11,164,557

Figure 10 - Wireless E-911 Funding History

more localities move to implement the service and more service gets implemented (Figure 10). In the first year, 23 PSAPs serving 28 localities received a total of $4.3 million and twelve wireless service providers serving those localities received approximately $400,000 to support the requests. The amount received by the providers was ten times less than was requested due to delays with the actual implementation of services.

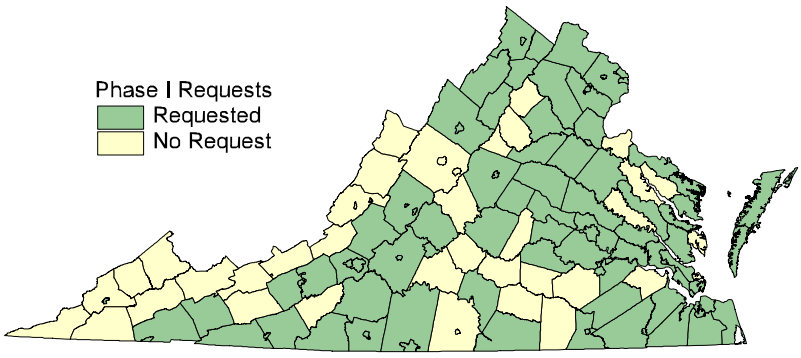

Figure 11 - Localities receiving funding from the Wireless E-911 Fund

The Board approved 40 PSAP submissions in FY2001 totaling $7 million. Many of the first time submissions included one-time purchases that will not be included in future submissions to the Board. After the initial installation, the subsequent submissions simply include equipment maintenance, trunking costs, and personnel costs. The wireless service providers submitted funding requests for FY2001 totaling $4.4 million; however, only about $1.9 million was justified during the audit. The majority of provider costs are generated by monthly recurring costs, such as trunking and third party provider costs. The monthly recurring costs do not start until service is implemented and since many installations continued to be delayed in FY2001, there were lower than expected costs. The figures provided for FY2000 and FY2001 are based on the actual cost incurred as documented in the yearly audit, which the *Code* requires[5] to be conducted at the end of each fiscal year.

For FY2002, the Board approved 83 PSAP funding submissions, which serve 92 or 69% of the localities in the Commonwealth, totaling over $14.3 million. The Board is currently in the process of auditing FY2002 so this amount represents the funding the localities received, but may be adjusted after the audit is conducted. During this same period, the wireless providers received a total of approximately $2.4 million, but this is also subject to the audit currently underway.

Though the number of PSAPs requesting funding in FY2003 appears to have declined, submissions have been received from five new PSAPs for a total of 97 localities (Figure 11). Sixteen PSAPs that had made submissions in FY2002 have not yet made submissions in FY2003. Contact with each locality revealed a number of reasons for not having made a submission, but all plan to in the coming months. Even with this increase of five new submissions, there are still 37 localities (Figure 12) that have not requested funding for enhanced service. It is unclear at

Appomattox County	King William County
Augusta County	Lee County
Bath County	Lunenburg County
Bland County	Mathews County
Brunswick County	Nelson County
Buchanan County	Nottoway County
Campbell County	Poquoson
Covington	Prince Edward Cnty
Craig County	Rappahannock Cnty
Cumberland County	Richmond County
Dickenson County	Russell County
Dinwiddie County	Scott County
Essex County	Staunton
Floyd County	Surry County
Giles County	Tazewell County
Greene County	Waynesboro
Halifax County	Wise County
Highland County	Wythe County
King George County	

Figure 12 - Non-Submitting Localities

[5] Section 56.484-17, *Code of Virginia*

this time why these localities have not made a request to the Board. DPSC staff has been aggressively contacting these localities and making them aware of the funding opportunities and the statutory requirements to implement wireless 9-1-1 service (discussed later).

Phase II Funding

In early FY2002, the Board approved Phase II funding guidelines for both PSAPs and wireless service providers. The primary difference between Phase I and Phase II in the PSAP is the addition of mapping. To provide this, during FY2002, the Board approved funding, $9.8 million, for the first phase of the Virginia Base Mapping Initiative, which provides digital orthographic photography of the entire Commonwealth. The unprecedented project is being conducted in partnership with the Virginia Geographical Information Network (VGIN) Division. The Board will also be providing other mapping data such as street centerline and addressing data. VGIN is currently studying the best way for the Board to provide this data leveraging existing data and projects in other agencies like the VDOT road centerline project. The Board also provides funding to the PSAPs for the system to display the mapping data to the call taker. During FY2002, approximately 30 localities requested and received funding for the implementation of Phase II service. For FY2003, Phase II requests were made as part of the normal funding process and as a result are reflected in the overall submission figures.

The Board recently readdressed the issue of wireless provider funding for Phase II service. The original guidelines were broad allowing each provider to make a submission that would be evaluated on a case-by-case basis. After reviewing the first round of funding requests for FY2002 and FY2003, the CMRS Subcommittee identified an issue that required a change in the funding guidelines. The need for change was identified because of a wide disparity in the funding requests based on the type of location technology being proposed. The FCC order requiring the implementation of these services allows the provider to select the technology to be used, handset or network. The Subcommittee found that some requests had funding requested for the location measurement device and others did not. On the handset-based solution, the location measurement device is the GPS chip in each telephone. The Subcommittee found that this was not included in most of the funding requests from providers using the handset based solution because the incremental cost of the chip and an accurate count of handsets sold were nearly impossible to obtain. The equivalent component on in the network solution is the location measurement unit at each tower. For parity between the technology choices, the Board explicitly excluded the location measurement unit from funding for both solutions. Had funding been provided for these devices the statewide deployment cost for Phase II would be increased by approximately $40 - $50 million.

It must be noted that three wireless providers, Sprint PCS, Nextel and VoiceStream, have indicated that they do not intend to seek cost recovery for Phase II. Their reasons are varied but include that they intend to market location technology services that will fund the network improvements and that the FCC has removed the requirement for cost recovery for Phase II. Regardless of the reason, this decision greatly reduces the cost to deploy Phase II services in the Commonwealth.

Project Management Funding

At the beginning of FY2002, the Board was asked to consider providing funding for project management assistance. The concern was that while deployment of services were occurring with great speed in the more urban areas, deployments in some rural areas was much slower due to the amount of time local staff had to spend on the project (rural PSAP managers rarely have a large

staff and often serve many roles in the locality such as Emergency Services Coordinator) and the lack of experience with wireless. In several localities the County Administrator was the primary contact for the deployment of wireless E-911. The Board approved project management services as an allowable cost, but with two caveats. First, the Board asked DPSC staff to prepare a solicitation to have one or more consulting firms under contract for this type of service. This was done to maximize the buying power of the Commonwealth and prevent each locality from having to do their own solicitation. After contracts had been executed, the PSAPs would then be required to use one of the pre-qualified firms. The second caveat was that the amount of funding would be capped at $32,000 per PSAP per phase. However, to encourage regional approaches, which again provide greater economies of scale, the Board decided that the cap should be waved if at least five contiguous localities work together with the same project management firm.

To allow smaller firms to provide a bid, the Commonwealth was divided into seven districts and each firm could bid one or more districts. To give the localities a choice in the selection of a firm, five firms were selected in each district. DIT released the IFB for statewide services in March 2002 and contracts were awarded to six firms in May 2002. Since award, several regional PSAP groups have selected a project management firm. To date, seven regions and four individual localities have selected firms with project scopes totaling $5.7 million. Twenty-six of the 37 localities that have not sought wireless funding are participating in a regional effort so it is likely they were waiting for project management assistance before starting. Now that they have it, they should proceed rapidly. Three additional regions are considering assistance. The total statewide cost of project management is projected to be $7.5 million to $8 million.

Phase I Project Status

To date, eighteen localities have implemented wireless E-911 Phase I (call back number and cell site location) with all of the wireless service providers serving the locality and there are about a dozen more with only one more provider to implement. Sixty-two other localities have implemented with at least one of their providers (Figure 13). This is exactly twice as many as last year.

Though greater success is being realized, 143 requests exceed the six-month implementation requirement established by the FCC order. Some of the unfulfilled requests were originally made as far back as April of 1999. Though there is a multitude of reasons for the delays, it should be noted that some providers have been more successful than others despite the technical hurdles.

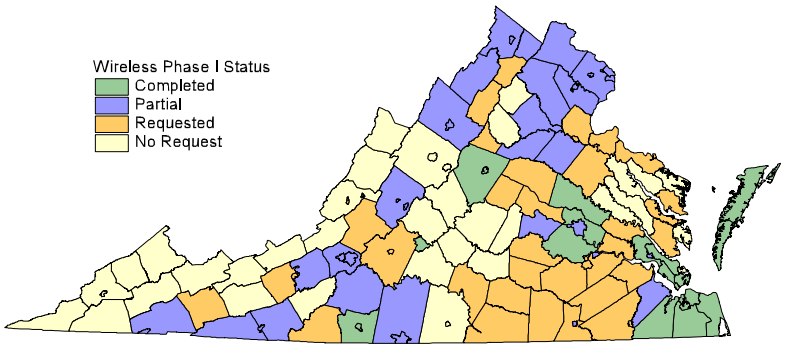

Figure 13 - Wireless E-911 Phase I Implementations

The Board has expressed a large degree of frustration with the lack of progress. Early delays were the result of a lack of preparedness by wireless service providers and wireline telephone companies. To identify the current delays, the Board conducted status reviews of each wireless service provider

and the wireline telephone companies over several Board meetings. During these status reports several wireless service providers were lauded for their hard work and apparent dedication to the implementation of Phase I service. Though their implementations were not always within the six-month window directed by the FCC, the delays were attributable to the newness of the technology. Other providers were challenged by the Board to improve their performance with the implementation of service. Wireless service providers are now required to provide the Board with monthly status reports, which are posted on the DPSC website. These reports have been mapped to provide a visual status for each provider (Figures 14-27). The "Requested" status does mean that the PSAP has requested service and that it has not yet been installed, but it does not necessarily mean that the project is behind schedule. Some PSAPs have only recently requested service with anticipated implementations in January 2003 or later.

Deployed	Over 6 months	Under 6 months
26 Localities	14 Localities	8 Localities

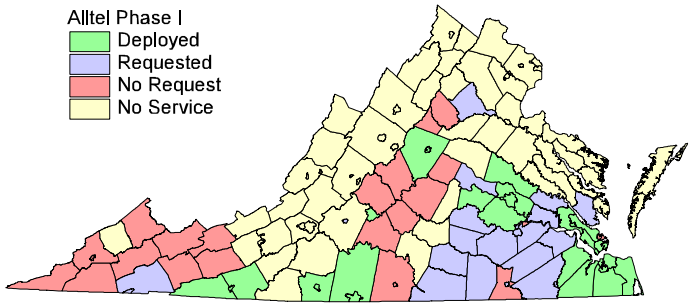

Figure 14 - Alltel Phase I Status

Alltel has completed installation in most of the areas requesting service. Of those requests still pending, five require a PSAP upgrade to occur before implementation can take place and three require the wireline telephone company to install trunking. Alltel was the first provider to implement Phase I service for a PSAP in southwest Virginia.

Deployed	Over 6 months	Under 6 months
5 Localities	2 Localities	0 Localities

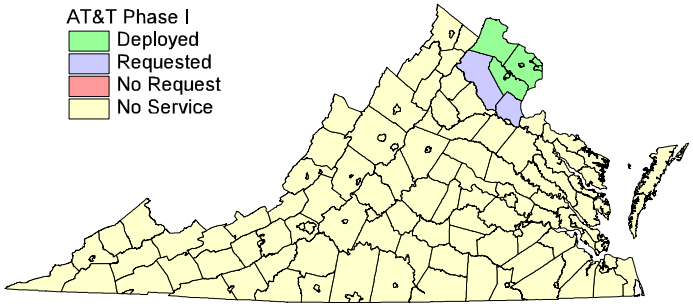

Figure 15 - AT&T Wireless Phase I Status

Last year, AT&T Wireless did not have a single deployment in Virginia. It was not a technical problem preventing implementation but rather a corporation policy that they will not begin implementation until an interconnection agreement was negotiated with the wireline service provider (Verizon) and a service agreement was completed with the PSAP. By September 1, 2001, AT&T Wireless had both in place and they completed implementation of the five Northern Virginia

Deployed	Over 6 months	Under 6 months
15 Localities	8 Localities	3 Localities

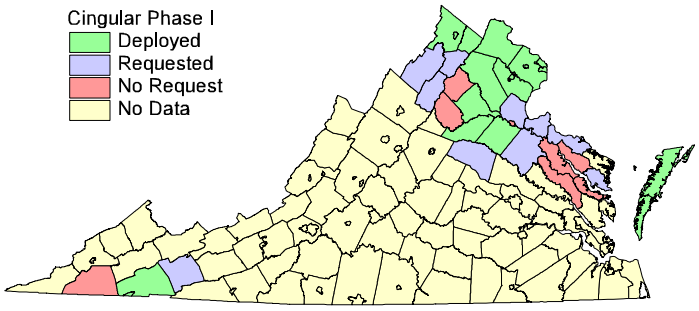

Figure 16 – Cingular Phase I Status

localities by the end of November.

After having canceled service from their enhanced services provider in late June 2002, Cingular, created from the merger of Bell South and SBC, basically had to start over on most of their deployments. With a new service provider on board, Cingular has successfully implemented all of the requests they had. All of the pending requests over six months are waiting for an issue to be resolved at the PSAP, such as the installation of trunks or equipment upgrades, before they can proceed.

This was the spot in last years report where Devon Mobile appeared. However, having been heavily financed by Adelphia Communications, Devon discontinued service recently when Adelphia declared bankruptcy.

Deployed	Over 6 months	Under 6 months
0 Localities	1 Locality	0 Localities

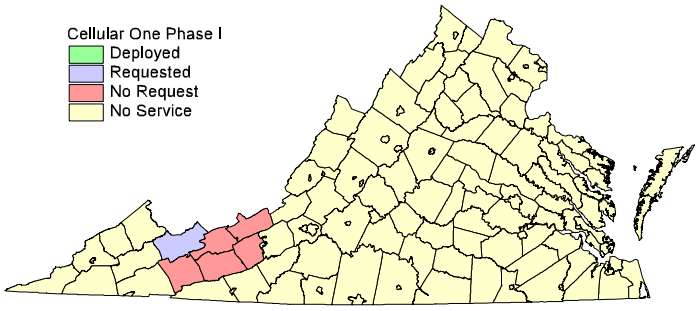

Figure 17 – Cellular One (Highland Cellular) Phase I Status

Cellular One (Highland Cellular) is a West Virginia based company that only offers service in six western localities. Tazewell County is the only locality in this area that has made a request for Phase I service. Currently, Tazewell is not ready to receive the Phase I information from Highland Cellular since they are still in the process of finishing their wireline E-911 implementation.

Deployed	Over 6 months	Under 6 months
14 Localities	13 Localities	4 Localities

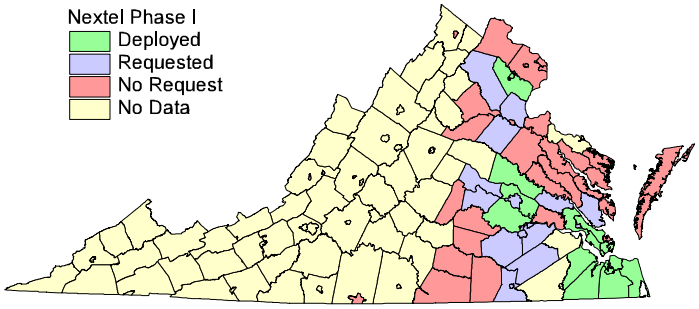

Figure 18 – Nextel Phase I Status

Nextel started off the year very strong with 10 implementations. They had finished the upgrade of their mobile switching center, which was required before implementations could begin. In the latter part of the year, Nextel has not performed as well not having any implementations in the last six months of the fiscal year.

Deployed	Over 6 months	Under 6 months
5 Localities	4 Localities	4 Localities

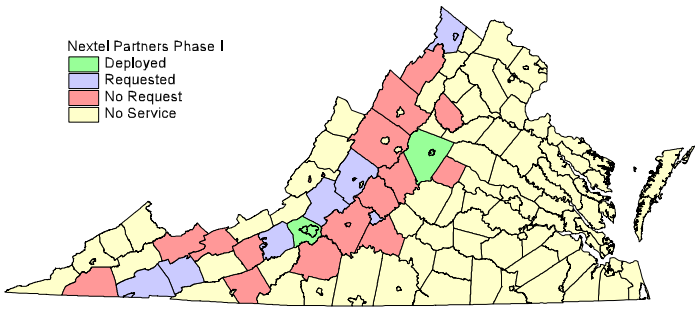

Figure 19 – Nextel Partners Phase I Status

Nextel Partners, owned in part by Nextel, is a relatively new entrant to Virginia. They are

implementing wireless service along the Interstate 81 corridor. Though they are just starting to roll out service, they have already deployed Phase I service in five localities.

Ntelos continues to be very aggressive with their Phase I implementations. Ntelos was the first wireless service provider in Virginia to implement service and now has the largest number of deployments. Ntelos, which was formed after CFW Communications purchased the Virginia assets of PrimeCo, continues to demonstrate a strong commitment to public safety and should be commended.

Deployed	Over 6 months	Under 6 months
39 Localities	6 Localities	3 Localities

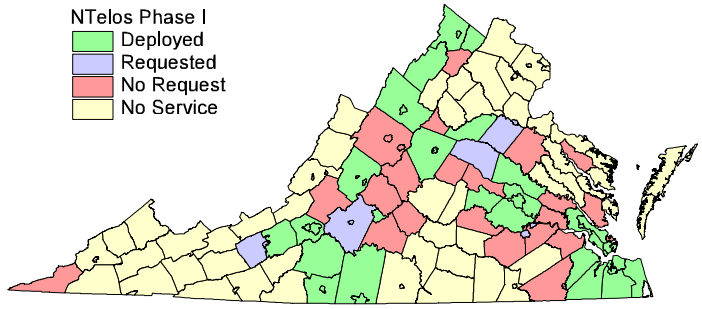

Figure 20 – Ntelos Phase I Status

Shenandoah Cellular is a rural wireless service provider serving only seven localities in the Northern Shenandoah Valley. Shenandoah Cellular actually uses Verizon Wireless' switching infrastructure in the provision of service. As a result, Verizon Wireless actually needs to implement the service so these localities will be tracked with Verizon Wireless.

Deployed	Over 6 months	Under 6 months
16 Localities	22 Localities	9 Localities

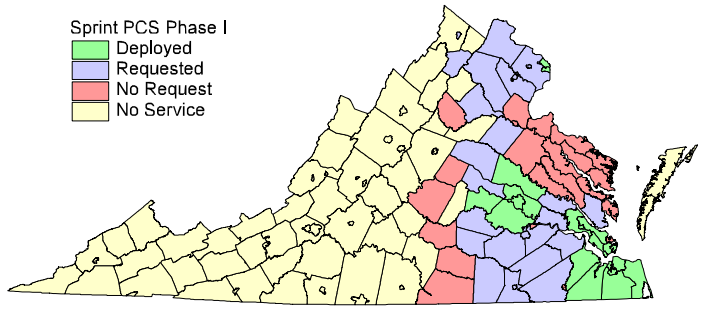

Figure 21 – Sprint PCS Phase I Status

A major equipment problem has prevented Sprint PCS from continuing their implementation of Phase I. In the northern areas of the state, Sprint utilizes a Lucent mobile switching center. Simply put, a working Phase I upgrade for the Lucent switch does not exist. This is a national issue and not unique to Virginia. A solution has been developed, which basically will require the localities to go straight to Phase II skipping Phase I. Sprint is in the process of testing their Phase II solution so implementation is expected soon.

Deployed	Over 6 months	Under 6 months
31 Localities	20 Localities	14 Localities

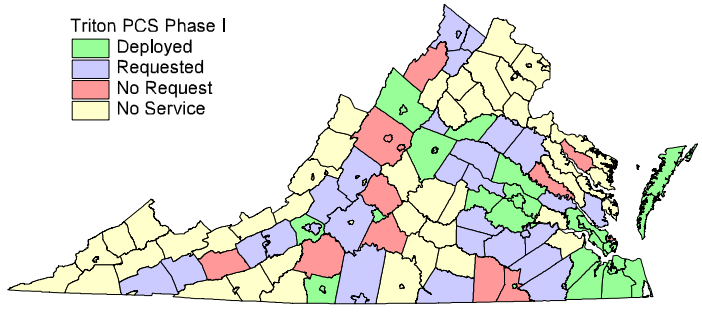

Figure 22 –Triton PCS/ Suncom Phase I Status

Triton PCS/Suncom started out the year slow finishing the

technology change out referenced in last year's report. This change required Triton to go back to localities that had been implemented and reinstall a new solution. Once this was completed, Triton excelled completing 16 deployments in the last five months of the year.

U.S. Cellular has struggled to get service deployed this past year. During all of FY2002, they were only able to deploy the Martinsville/Henry County joint PSAP in December. Though they are a rural carrier, they have had requests from 12 localities to implement service and thus far have been unable to do so.

Verizon Wireless was the second wireless service provider to implement Phase I in Virginia. Verizon should also be commended for being the first to implement Phase II in Virginia; however, with their focus on Phase II, their deployments of Phase I have suffered. Verizon Wireless has the most requests over the six months deadline and has only had eight deployments for all of FY2002. For a company of Verizon Wireless' size, more implementations would be expected.

Deployed	Over 6 months	Under 6 months
5 Localities	9 Localities	3 Localities

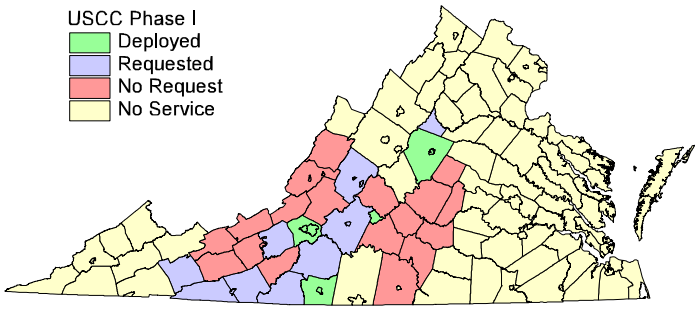

Figure 24 –U.S. Cellular Phase I Status

Deployed	Over 6 months	Under 6 months
25 Localities	33 Localities	4 Localities

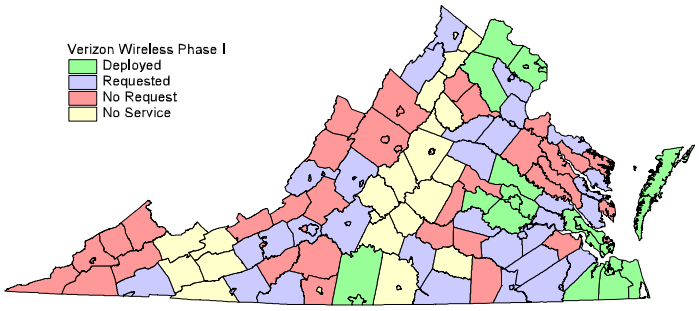

Figure 23 –Verizon Wireless Phase I Status

Deployed	Over 6 months	
0 Localities	2 Localities	0 Localities

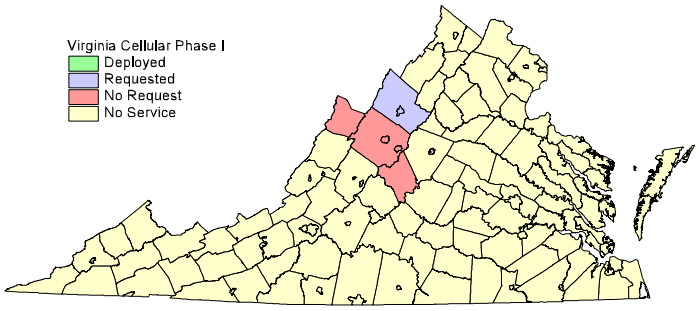

Figure 25 –Virginia Cellular Phase I Status

Virginia Cellular is a small rural provider with only two localities having requested Phase I service. Though service has not yet been provided, Virginia Cellular is working with a third party Phase I service provider to get services implemented. The delay over the last several months does not appear to be a technical one.

VoiceStream, soon to be T-Mobile, is a new provider in Virginia. Though they have had service in Northern Virginia for over a year, they are currently in the process of deploying service in the

Richmond, Tidewater and Danville areas. They have not deployed Phase I service anywhere yet, but are working to implement Northern Virginia and plan to deploy Phase I services as they roll out new market areas. In addition to Phase I, VoiceStream plans to deploy a less accurate version of Phase II at the same time. This less accurate version of Phase II, some people refer to it as Phase 1.5, has the advantage of working with all existing handsets though it does not meet the FCC's requirements. It is being implemented as an interim step until location equipped handsets become widely available and deployed.

Deployed	Over 6 months	Under 6 months
0 Localities	15 Localities	0 Localities

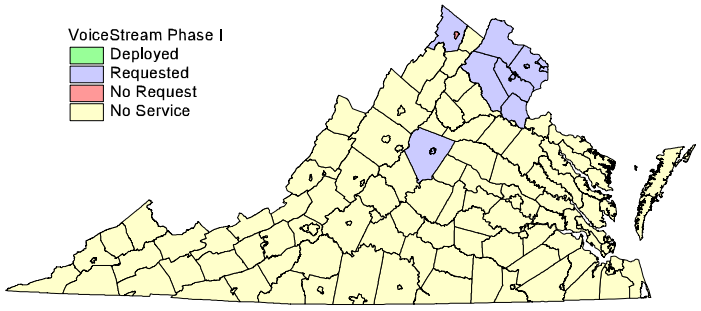

Figure 26 –VoiceStream Phase I Status

Phase II Project Status

Probably one of the most exciting advances in the past year has been the deployment of Phase II in Eastern Virginia. Verizon Wireless implemented York County with Phase II on April 2002. This made York County only the fourth implementation of Phase II in the country. In addition to the handset solution, which requires subscribers to obtain a GPS equipped telephone, Verizon Wireless implemented a network-based solution that would provide the location on all existing handsets, but not at the accuracy required by the FCC. The network solution used by Verizon Wireless provides a location within 400 to 1,000 meters for almost every wireless call regardless of whether the subscriber has upgraded their telephone.

After the first implementation and due largely to York's leadership in the region, Verizon Wireless implemented the other Tidewater localities in the weeks and months subsequent (Figure 27). Currently, only two localities in the region have not been implemented. They will very soon resolve equipment issues that will allow them to implement as well. This implementation is the largest deployment of Phase II, both geographically and by population served, in the Country. Verizon Wireless has now moved into other areas of the Commonwealth having deployed recently in Richmond and preparing to test in Northern Virginia. Other providers, such as Sprint PCS and Nextel, have also started to test their Phase II solutions in Virginia as well.

There has been concern recently that the location technology selecting by a few providers, Enhanced Observed Time Difference (EOTD), may not be ready in time for deployments. AT&T, Cingular and others announced their intent to use

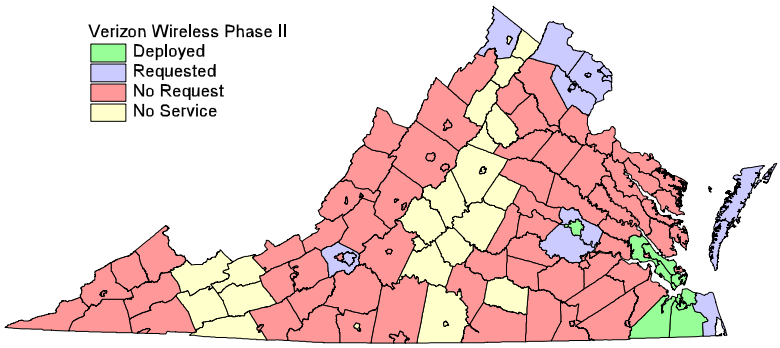

Figure 27 - Wireless E-911 Phase II Status

EOTD, which is a handset-based technology, with their next generation networks (GSM) they will be deploying. In their waiver request they had committed to deploying EOTD handsets concurrent with the launch of their new network. This has not been able to happen because the handsets have not been available.

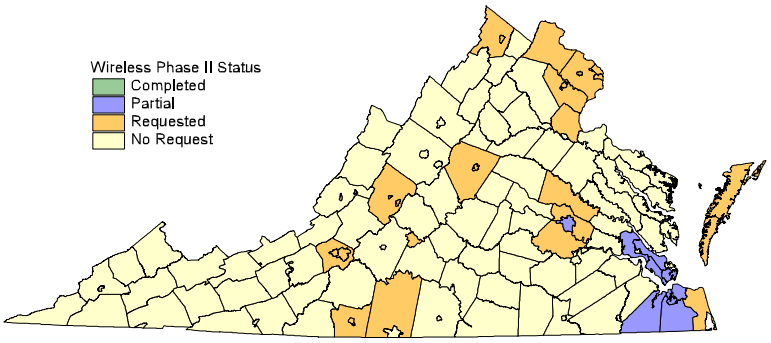

Figure 28 - Wireless E-911 Phase II Status

To date, thirty-eight localities have requested Phase II service (Figure 28). Though the original FCC order required deployment to begin by October 1, 2001, every major wireless service provider sought and received a waiver of that requirement from the FCC. The waivers granted each provider an extension of time but did not relax the accuracy requirement nor extended the completion date for implementation, which is December 31, 2005 for 95% of all subscribers to have location equipped handsets. While the FCC dealt with each of the six major carriers individually, they dealt with all of the smaller providers as a block. They split them into two groups calling them Tier II and Tier III and extended the deadlines by seven months and thirteen months, respectively.

In their most recent actions, the FCC has remained firmly committed to the delivery of wireless E-911 and has demonstrated this with a recent $2 million fine against AT&T Wireless for violations of their orders. But with all of the action of the FCC and even the Wireless E-911 Services Board, complete deployment will still rely on the subscribers purchasing the equipped handsets. Though many providers are implementing safety-net solutions that will provide a location for legacy handsets, as previously mentioned, the accuracy is less than required by the FCC. Figure 29 shows a map of downtown Richmond near the Capital. The flag represents a caller at the corner of 9th Street and Broad Street, in front of the General Assembly Office Building. The blue circle shows a 750-meter radius area, which is the possible error for some of the safety-net solutions. The circle extends from 1st Street to Shockoe Bottom and from the Interstate 95 and 64 interchange to the James River. Though much more helpful in rural areas, in urban areas it is less beneficial. The green circle represents a 300-meter radius area, which is the largest allowable error under the FCC order (for a network-based solution). Again, very helpful in a rural area, better in an urban area, but still it encompasses about six square blocks. The red circle is a 50-meter radius area. This level of accuracy, required for all handset based solutions (67% of the time), will get the responder within a block; however, even this will not provide elevation so responders will not know which floor of the GAB the caller is on. Of course, searching one building is much better than searching six square blocks or more.

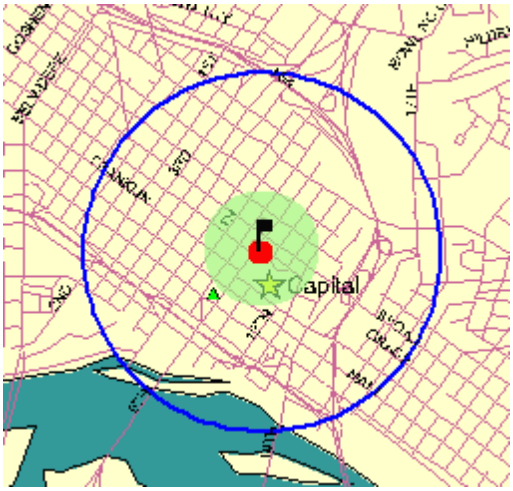

Figure 29 – Varied Accuracy Levels

Wireless Responsibility

Section 56-484.16 of the *Code of Virginia* makes clear the General Assembly's intent that wireless 9-1-1 calls should be answered by the local PSAP instead of the State Police. The *Code* requires all localities to be at least taking the wireless 9-1-1 call directly if they had enhanced wireline E-911 by July 1, 2000. Those that didn't would have until July 1, 2003 to be taking the calls. While progress has been made (Figure 30), wireless 9-1-1 calls are still going to the State Police in 54 localities. Twenty-five of these localities, were not wireline E-911 on July 1, 2000 so they have the extra year to implement. Of the remaining, the Board granted six-month extensions of time (as allowed by *Code*) to fifteen (Figure 31).

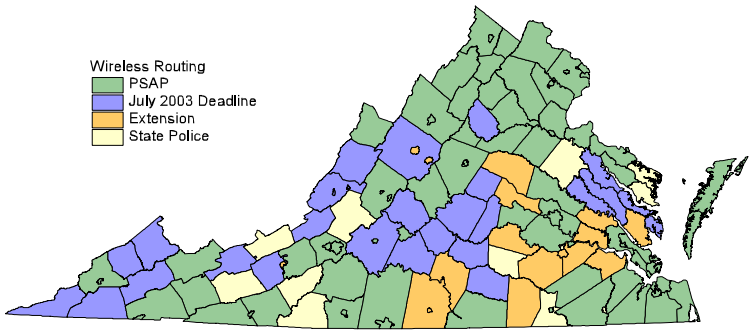

Figure 30 - Responsibility for Wireless 9-1-1

It is unclear why the other localities have not either implemented or sought an extension. All of the localities are known to be working on the deployment of Phase I with a regional group or has made a funding request of the Board. It is possible that the locality thought since they had a valid funding request that an extension request was unnecessary.

Localities implementing wireless 9-1-1, as required by the *Code*, are encouraged by the Board to take the extra step to implement wireless enhanced 9-1-1 Phase I. This decision gives the localities greater information (call back number and cell site location) on wireless calls and access to funding from the Board. It is likely that at least a few of the localities needing to be taking the calls by July 1, 2002 will not make the deadline. In fact, Bland and Mathews Counties have already sought and extension to their wireline E-911 deployments to correspond to facility construction schedules. In approving the request, the Board also extended the deadline for wireless. Regardless all should be taking the calls by 2004.

Alleghany County	Goochland County
Amelia County	Greensville County
Amherst County	King & Queen County
Appomattox County	King William County
Augusta County	Lancaster County
Bath County	Lee County
Bedford County	Louisa County
Bland County	Lunenburg County
Botetourt County	Madison County
Buchanan County	Mathews County
Buckingham County	Middlesex County
Campbell County	New Kent County
Caroline County	Northumberland County
Charles City County	Nottoway County
Charlotte County	Patrick County
Colonial Heights	Petersburg
Covington	Prince Edward County
Craig County	Prince George County
Cumberland County	Pulaski County
Dickenson County	Radford
Dinwiddie County	Russell County
Essex County	Scott County
Floyd County	Staunton
Fluvanna County	Surry County
Franklin	Waynesboro
Giles County	Wythe County
Gloucester County	
Legend	
	= July 1, 2002 deadline.
	= 6-month extension (Dec 02)
	= July 1, 2003 deadline.

Figure 31 - Localities not taking wireless 9-1-1

Wireline Enhanced 9-1-1

Wireline E-911 Project Status

Originally, twenty-four localities were identified as not having E-911 by July 1, 2000 with an additional ten that used an unverified 9-1-1 database (explained below). Upon closer analysis, the actual number of localities is 37 (Figure 32). The reason for the difference is that several localities believed that they were E-911 compliant, but they were not. From July 1, 2000 to July 1, 2002, thirteen localities have implemented E-911 service bringing down the number of localities to 26 that need to implement during the next year (Figure 33).

Accomack County	Highland County
Alleghany County	King & Queen County
Amherst County	King William County
Appomattox County	Lee County
Augusta County	Lunenburg County
Bath County	Madison County
Bedford	Mathews County
Bedford County	Middlesex County
Bland County	Nelson County
Buchanan County	Northampton County
Buckingham County	Norton
Campbell County	Prince Edward County
Clarke County	Pulaski County
Covington	Russell County
Craig County	Scott County
Cumberland County	Tazewell County
Dickenson County	Westmoreland County
Essex County	Wise County
Fluvanna County	
Legend	
	= Currently E-911
	= Basic 9-1-1
	= No 9-1-1

Figure 32 - Localities without E-911 as of July 1, 2000

With an unverified 9-1-1 database, the address information associated to a telephone service does not verify as being valid when it is entered into the 9-1-1 database. Simply put, whatever location information is provided to the telephone company when the telephone service is ordered is entered into the 9-1-1 database. In a typical enhanced 9-1-1 system, all telephone service requests are verified against a list of the valid street names and address ranges in the jurisdiction. Consequently, if a citizen requests telephone service and provides an incorrect address, it is identified as an error and is flagged for resolution. The Board previously considered whether an unverified 9-1-1 database should be considered true E-911 and decided it should not. This put the localities with this level of service under the requirement to complete their implementation, but also gave them access to a portion of the funding.

The following is provided as an update for each locality still needing to implement wireline E-911:

Accomack County is a member of the Eastern Shore PSAP with **Northampton County**. They have had the E-911 equipment for several years. They are currently in the process of conducting the verification of the 9-1-1 database with Verizon.

Appomattox County has completed the mapping and addressing process and is working on the verification process and the installation of street signs. They expect to be able to meet the July 1, 2003 deadline.

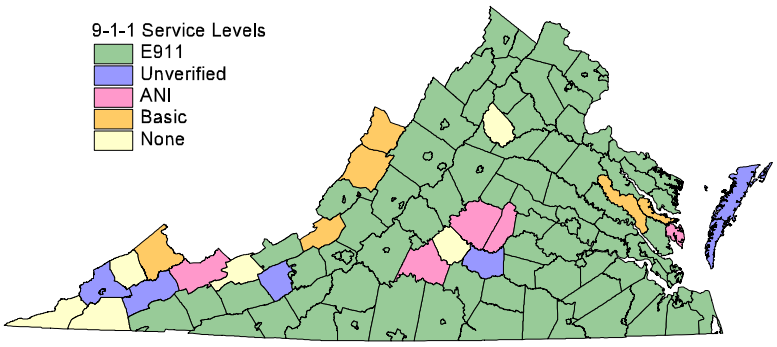

Figure 33 - Wireline enhanced 9-1-1 service levels

Bath County has sought an exemption from deployment under §56-484.16D, which gives any locality with less than 50% coverage by wireless telephone service and no wireline E-911

surcharge an exemption from implementing wireline E-911. The Board has offered Bath County 100% funding of non-recurring costs to encourage them to deploy anyway, but Bath County must be able to fund the recurring cost. To help them make a decision, the Board is also funding a study that will define the recurring costs. A final decision is expected before the first of the year.

Bland County has hired an E-911 Coordinator and now that the funding is available, recently executed a contract for the mapping and addressing process. As previously mentioned, Bland requested and received an extension of time to December 2003 to correspond with the construction of a new PSAP facility.

Buchanan County did not even have basic 9-1-1 in July 1, 2000. They have since implemented basic service and are working on enhanced. They are currently working on the mapping and addressing process. They have also hired an E-911 Coordinator to assist them with the project.

Buckingham County is one of the counties that believed they were providing E-911 but was not. They actually purchased E-911 equipment in 1990 and populated the database with rural route information and two lines of directional information. They never undertook the mapping and address process. While this may have worked for them in the past, it is not compatible with wireless E-911 and is actually preventing other localities in their region from implementing Phase I service. They have now contracted with a firm to conduct the mapping and addressing so they should begin moving forward. They also recently raised their wireline surcharge from $0.55, which had been since 1990, to $3.00 to help fund the implementation.

Campbell County is another locality that had reported that they were full E-911 as of July 1, 2000. What was later found was that a portion of the County was E-911, but not all. Both Sprint and Verizon serve the County. Much of the Sprint area was completed, but none of the Verizon territory had been. The infrastructure is all in place so all they need to do is get the data in line. Since this is a relatively recent discovery, they are still meeting with the telephone companies to determine a timeline.

Craig County, like Bath County, would likely qualify for an exemption from implementing E-911. However, to their credit, they were the first of the four localities that does qualify to approach the Board anyway. It was at their request that the Board considered 100% funding for the exempted localities and they agreed to implement even without the study of recurring costs. They have recently implemented a $2.00 wireline surcharge to help fund those recurring costs.

Cumberland County is currently in the verification process. They are nearing the magic 95% valid mark that must be attained before being declared as enhanced.

Dickenson County has hired an E-911 Coordinator to manage the E-911 project. They have completed the mapping project and are currently working on the assignment of addresses.

Highland County is the third of four localities qualifying for the exemption under §56-484.16D. Like Bath County, they have been offered 100% of the non-recurring cost and have asked for the study of the recurring cost.

King and Queen County is about half way through their mapping and addressing process and do not expect to be able to implement service much before July 1, 2003.

Lee County is the final exempt locality. Not originally targeted for the exemption, Lee County feels that they do qualify. That would make them the only exempt locality that does not have any form of 9-1-1. The other three localities all had at least basic 9-1-1. They have been offered the 100% funding and have asked for the study to be completed.

Madison County has executed a contract for the mapping and addressing process and is nearly finished. They have hired an E-911 Coordinator and are well on their way. They are projecting an implementation date of June 1, 2003.

Mathews County has a contract for mapping and addressing and has hired a project management firm even though they have requested and received an extension of time for the deployment until December 2003. The extension is to allow them to implement service concurrent with the move of the PSAP into their new courthouse.

There is some confusion regarding the status of **Middlesex County**. They have requested funding to begin a mapping and addressing process but records indicate that the process was completed three years ago. Unfortunately, the person from the County with the ability to resolve the confusion had been on active duty in the military for an extended period.

The **City of Norton** is another locality where there is some confusion. The City reports that they are fully E-911 and have been since before July 1, 2000; however, their telephone company, Verizon, reports that they are still on an unverified database. DPSC staff will be helping to resolve the confusion and helping Norton take whatever steps are necessary to become fully E-911.

Prince Edward County is working on the verification process and should be complete by the July 1, 2003 deadline.

Pulaski County is another locality that had the E-911 equipment, but never implemented a verified database. Having only very recently learned that they were not verified, it is unclear at this point what needs to be done to finish the process.

Russell County has hired an E-911 Coordinator and a firm to conduct their mapping and addressing process. They are more than half way through this part of the project.

Scott County was another locality that needed funding assistance before they could get started. They now have an E-911 Coordinator and a project management firm on board. They will soon be releasing a request for proposal for the mapping and addressing process.

Tazewell County has been delayed for quite some time by the post office. They and the telephone company are ready to implement the new addresses, but they must get approval from the post office and the post office has been slow to act. Unlike most of the rest of the state, the postmaster in Charleston, West Virginia serves Tazewell.

Wise County has been mapped and addressed, but has not completed the verification process.

Wireline E-911 Funding

The current biennial budget includes a $9.8 million appropriation from the Wireless E-911 Fund to assist localities with the deployment of wireline E-911. To ensure that localities could receive the

funding as quickly as possible, the Board adopted funding guidelines in March 2002 and began receiving funding requests in May. The Board approved $7.2 million to 22 localities before the fiscal year began so that on July 1 the first payments could be made. The first payment totaled $2.4 million. Other payments will be made as the localities sign contracts or receive firm price quotations.

Even with this funding, it is likely some localities will not implement by the July 1, 2003 deadline established in *Code*. The Board has the authority to grant extension of time and has already done so for Bland and Mathews Counties. While some localities such as Bland, Madison, Fluvanna, Mathews, Buchanan and Dickenson Counties were able to get started even before funding was available, others were not able to start until the funding was provided. While it is possible to implement E-911 in one year, it is unlikely all will be successful.

The process for implementation of enhanced 9-1-1 can be broken down into two broad processes, (1) the mapping and addressing process and (2) the network and equipment process. During the mapping and addressing process, the locality, by itself or with a vendor, identifies and names all of the streets and structures in the locality, assigns a street address to each structure in the locality and posts a street sign at each intersection. Often the jurisdiction will hire one vendor to perform the entire mapping and address process with the exception of the street naming, which is the responsibility of the locality. The result of this process is a list of the old addresses matched with the new addresses and the occupant's name and telephone number. The total cost for this process can range from $135,000 to $450,000 depending on the size of the jurisdiction. A portion of this cost will now be saved due to the Virginia Base Mapping Initiative supplying digital orthographic photography to the localities. The Board is requiring all localities that still need to map and address to use the VGIN supplied data.

The second process is the network and equipment implementation. The local telephone company provides the network components, which are basically the telephone lines needed to complete the 9-1-1 call from the caller to the PSAP. The local telephone company often, but not always, provides the enhanced 9-1-1 telephone equipment as well. This includes the equipment to answer the call, request the location information and display the information to the call taker. The cost for the network is $2,100 to $7,500 per 1,000 telephone access lines in the jurisdiction. In addition, the equipment will cost approximately $150,000 for a two-position PSAP. No statewide contracts exist for this equipment so each locality must conduct their own procurement.

Under the wireline E-911 grant guidelines, the following costs are considered allowable: mapping; addressing; street signage; customer premise equipment (PSAP equipment); and network costs. Specifically not eligible for funding under the wireline E-911 grant guidelines are: voice logging equipment; computer-aided dispatch systems; buildings and furnishings; and radio systems.

Conclusion

The wireless E-911 legislation currently in effect in Virginia is generally sound. It continues to demonstrate Virginia's leadership in 9-1-1 and commitment to public safety. The Board is recommending two legislative changes be considered during the 2003 General Assembly Session. The first would explicitly include prepaid wireless service in the collection of the wireless surcharge and provide wireless service providers two methods to collect it. Currently, an inequity exists in that some providers collect the surcharge from prepaid subscribers and others do not collect it. The

second recommended change would allow Board members to send an alternate to act in their place if they are unable to attend a Board meeting. The Board has had several meetings during the past year when a quorum was not met or was in jeopardy.

The implementation of wireless enhanced 9-1-1 is progressing. The amount of the wireless surcharge, $0.75, is appropriate given the cost of statewide implementation. While the Wireless E-911 Fund is currently healthy, the cost of Phase II and other projects will likely eliminate by the end of the biennium any fund balance currently enjoyed by the Fund. The Wireless E-911 Services Board has awarded a total of $14.3 million to 83 PSAPs for FY2002 and $11.8 million to 71 PSAPs. Most exciting during FY2002 was the deployment of Phase II service in most of Eastern Virginia and Richmond. Led by York County, Virginia became the fourth and by far the largest Phase II deployment in the Nation.

The implementation of statewide wireline enhanced 9-1-1 also has progressed. A large portion of the $9.8 million appropriated during the 2002 General Assembly session from the Wireless E-911 Fund has been allocated for wireline E-911 grants to localities. While it is likely that at least some of the localities will not implement E-911 by July 1, 2003, at least everyone now is moving in the right direction.